



Preovulatory follicle dynamics in Toggenburg goats after treatment with intravaginal implants of progesterone for 6, 9 or 12 days

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Introduction

The use of ultrasound in reproduction made the daily monitoring of ovarian follicular development during estrous cycle possible, demonstrating the growth and regression patterns of antral follicles, and allowed a clear understanding of the process of recruitment, selection and follicular dominance in cattle (1,3) and sheep (2). The aim of this study was to evaluate the preovulatory follicular dynamics in goats, after hormone treatment at the anoestrus period for the induction and synchronization of estrus.

Material and Methods

Nulliparous and pluriparous (lactating or not) Toggenburg goats, with mean weight of 47.37 ± 1.75 and 3.65 ± 0.15 of body score condition (1 to 5 range), were selected and equally distributed into three groups: Treatment 1 (n = 10); treatment 2 (n = 10) and treatment 3 (n = 10). The animals remained with the intravaginal progesterone device (CIDR®, Pfizer - New Zealand) for 6, 9 or 12 days, respectively. At the moment of insertion of the device they received 1ml of prostaglandin (Lutalyse®, Pharmacia Corporation-USA) paravulvar and 24 hours before the device withdrawal 200U.I. (IM) equine chorionic gonadotropin (Novormon®, Syntex – Argentina) was given. The preovulatory dynamics was monitored using a portable ultrasound device equipped with an adapted 5 MHz probe, at 8-hour intervals (08:00 a.m., 04:00 p.m. and 00:00 a.m.) from the moment of CIDR withdrawal until the confirmation of ovulation. The position and number of ovarian follicles were recorded, and the diameter of antral follicles larger than 3.0 mm measured. Data from each animal was recorded on individual cards.

Results and Discussion

There was a higher incidence of ovulations in the right ovary in all treatments. The 9 day treatment presented larger ($p < 0.05$) follicles at the moment of the CIDR withdrawal. As the follicle growth rate, follicle size at ovulation and number of ovulations were similar among treatments ($p > 0.05$), the difference in dominant follicle size at CIDR withdrawal resulted in a shorter interval to ovulation in the 9 day treatment. This difference may be related to the moment of the follicle emergence when the insertion of the device, and also the follicle turnover period in goats (Table 1).

Table 1. Preovulatory follicle dynamic characteristics in each treatment.

Parameter	Treatment		
	12 days	9 days	6 days
Follicular diameter at the time CIDR withdrawal (mm)	5.6 ± 0.9^a	6.7 ± 0.88^b	5.6 ± 0.7^a
Follicular diameter at the time ovulation (mm)	7.1 ± 0.6^a	7.2 ± 0.56^a	6.7 ± 0.6^a
Interval CIDR withdrawal – ovulation (h)	37.1 ± 9.3^a	21.9 ± 5.8^b	38.5 ± 8.3^a
Growth follicular rate (mm/day)	1.0 ± 0.5^a	0.5 ± 0.9^a	0.7 ± 0.5^a
% of ovulation in right ovary	64.0 ^a	62.0 ^a	69.0 ^a
Total of ovulations	1.8 ± 0.9^a	1.3 ± 0.5^a	1.6 ± 0.5^a

^{a,b}Means followed by different letters, in the same line, differ ($p < 0.05$).

References

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